The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. An acidic bath for use in a process for depositing a noble metal alloy onto a surface of a microelectronic workpiece, the bath comprising:

species of a noble metal to be deposited on the surface of the microelectronic workpiece;

species of a second metal to be deposited on the surface of the microelectronic workpiece; and

an acid.

2. The acidic bath of Claim 1, wherein the noble metal is selected from the group consisting of silver, gold, palladium, platinum, rhodium, iridium, rhenium, and osmium.

3. The acidic bath of Claim 1, wherein the second metal is selected from the group consisting of nickel, cobalt, lead, tin, copper, thallium, aluminum, bismuth, chromium, indium, and molybdenum.

4. The acidic bath of Claim 1, wherein the noble metal is selected from the group consisting of silver, gold, palladium, platinum, rhodium, iridium, rhenium, and osmium and wherein the second metal is selected from the group comprising nickel, cobalt, lead, tin, copper, thallium, aluminum, bismuth, chromium, indium, and molybdenum.

5. The acidic bath of Claim 1, wherein the noble metal is platinum.

6. The acidic bath of Claim 5, wherein the second metal is selected from the group comprising nickel, cobalt, lead, tin, copper, thallium, aluminum, bismuth, chromium, indium, and molybdenum.

7. The acidic bath of Claim 6, wherein the second metal is selected from the group consisting of cobalt, nickel, lead, and tin.

8. The acidic bath of Claim 7, wherein the weight ratio of the second metal to platinum is greater than or equal to 5:1.

9. The acidic bath of Claim 5, wherein the platinum concentration ranges from about 1 g/L to 15 g/L.

10. The acidic bath of Claim 7, wherein the concentration of the second metal ranges from about 5 g/L to 70 g/L.

11. The acidic bath of Claim 1, wherein the pH of the bath ranges from about 0.5 to 3.0.

12. The acidic bath of Claim 1, wherein the acid is sulfamic acid.

13. A method for depositing a noble metal alloy onto a surface of a microelectronic workpiece, the method comprising the steps of:

contacting the surface of the workpiece with an acidic bath comprising species of a noble metal to be deposited on the surface of the microelectronic workpiece, species of a second metal to be deposited on the surface of the microelectronic workpiece, and an acid;

providing an anode spaced from the surface of the microelectronic workpiece in contact with the acidic bath;

applying electroplating power between the surface of the microelectronic workpiece and the anode; and

depositing the noble metal and the second metal onto the surface of the microelectronic workpiece.

14. The method of Claim 14, wherein the noble metal is selected from the group consisting of silver, gold, palladium, platinum, rhodium, iridium, rhenium, and osmium.

15. The method of Claim 14, wherein the second metal is selected from the group consisting of nickel, cobalt, lead, tin, copper, thallium, aluminum, bismuth, chromium, indium, and molybdenum.

16. The method of Claim 14, wherein the noble metal is selected from the group consisting of silver, gold, palladium, platinum, rhodium, iridium, rhenium, and osmium and wherein the second metal is selected from the group comprising nickel, cobalt, lead, tin, copper, thallium, aluminum, bismuth, chromium, indium, and molybdenum.

17. The method of Claim 13, wherein the noble metal is platinum.

18. The method of Claim 17, wherein the second metal is selected from the group comprising nickel, cobalt, lead, tin, copper, thallium, aluminum, bismuth, chromium, indium, and molybdenum.

19. The method of Claim 18, wherein the second metal is selected from the group consisting of cobalt, nickel, lead, and tin.

20. The method of Claim 19, wherein the weight ratio of the second metal to platinum is greater than or equal to 5:1.

21. The method of Claim 17, wherein the platinum concentration ranges from about 1.0 g/L to 15 g/L.

22. The method of Claim 19, wherein the concentration of the second metal ranges from about 5 g/L to 70 g/L.

23. The method of Claim 13, wherein the pH of the bath ranges from about 0.5 to 3.0.

24. The method of Claim 13, wherein the acid is sulfamic acid.

25. A method of Claim 13, wherein the acidic bath is at a temperature between about 40°C and 80°C.

26. The method of Claim 13, wherein the current density of the electroplating power ranges between about 10-100 mA/cm^2.

27. The method of Claim 13, wherein the acidic bath is at a temperature of about 75 C ± 5 C.